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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,832	07/03/2003	Oleh Weres		6806

7590 10/04/2005

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EXAMINER	
BELL, BRUCE F	

ART UNIT	PAPER NUMBER
1746	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,832	WERES ET AL.	
	Examiner	Art Unit	
	Bruce F. Bell	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/27/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10-12 are vague and indefinite with respect to the phrase "electrical contact enhancement means". It is unclear as to what is meant by "enhancement means".

Claims 13 and 14 are vague and indefinite with respect to the phrase "electrical isolation means". It is unclear as to what is meant by "electrical isolation means.

Correction and/or clarification are requested.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Regarding claims 10-14, the word "means" is preceded by the word(s) "electrical contact enhancement" or "electrical isolation", respectively, in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coin et al (5783050) in combination with (6325875).

Coin et al disclose an electrode used in an electrochemical process, which electrode is a porous multilayered electrode which is capable of being flexible, in strap form or in wound form around a central flat plate core, which core may serve as a current collector. The electrode may further have an active coating. See abstract. The metals of the electrode will be valve metals of titanium, tantalum, aluminum, zirconium and niobium, with titanium being the most preferred. See col. 6, line 66 – col. 7, line 4. The metal titanium can be a foil or expanded foil mesh. See col. 7, lines 23-24. The titanium electrode core has a metal mesh in wrapped form, providing a multitude of mesh screen layers wrapped around its core. The electrode core can also be of solid or foam construction. See col. 7, lines 14-21. The metal mesh used may be continuously wrapped around the core until the desired number of layers have been achieved. The wrapping in this manner achieves good contact with the core. See col. 10, lines 38-46. The electrode made is useful in electrochemical cells, such as

electrolyzers. These electrolytic cells are constructed in a known manner and include electrodes, membranes, separators and diaphragms. See col. 16, lines 16-63. Electroactive coatings that may be applied to the electrode are platinum, platinum group metals, active oxide coatings and mixed metal oxide coatings. See col. 18, lines 28-48.

Coin et al does not disclose a metallic fiber being disposed upon a substrate member in a wound manner.

Amamoto disclose a metal fiber made of titanium or titanium alloy obtained by a bundle drawing process. See col. 2, lines 65-67. The metal fiber is disclosed to be capable of carrying a catalyst. See col. 3, lines 10-12. The metal fiber is disclosed to have fine irregularities on their surface to increase the surface area. The surface area can also be increased by flattening or curbing the section form of the metal fiber. See col. 3, lines 28-41. The titanium fiber is made by a bundle drawing process whereby a bundle of covered filaments each having a core wire and covering layer formed there around with an outer housing to form a composite wire bundle. Each covering layer is one of a mild steel. During the drawing process, the individual crystal grains of the mild steel are curved and deformed in lateral section whereby irregularities are formed in the surface of the titanium core wire thereby increasing the specific surface area of the titanium fiber. See col. 4, lines 50-67. Titanium fiber made by the above method has a specific surface area larger than that of a conventional titanium fiber and when

used as a material for catalyst or catalyst carrier, the weight is light and performance is higher. See col. 10, lines 41-51.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though the prior art of Coin et al does not disclose a titanium fiber being wound around a metal substrate, Coin et al does disclose winding a metal mesh around their substrate. The prior art of Amamoto discloses that it is known to make a titanium fiber electrode having a high specific surface area and that this fiber can be used in bundle form and can include a catalyst material. One having ordinary skill in the art would have the ability of replacing a titanium mesh wound around a metal core electrode with a metal fiber to increase the surface area of the electrode being used for the purpose of increasing the catalytic activity in the electrolytic cell in which it will be used. By doing so, an increase in the performance of the cell should be noted due to this increased activity. The addition of niobium and tantalum to titanium is known to increase the catalytic activity within an electrolytic cell and are conventional in the art. The recitation of flattening in the prior art of Amamoto disclosing the increased surface area appears to meet the "crimping" limitation set forth in a dependent claim. The electrical isolation means is construed by the examiner to be a separator which is conventional in the art and is used for the purpose of preventing short circuiting between the electrodes within the cell.

Therefore the prior art of Coin et al in combination with Amamoto renders the applicant's instant claims as obvious for the reasons set forth above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BFB
October 2, 2005

Bruce F. Bell
Primary Examiner
Art Unit 1746